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ABSTRACT

This study investigates the develcpment of listener skills during childhood, and the effects of introducing a brief plan for effective listening on children's listener performances. The subjects were 96 children, 24 at each of four ages (four, six, eight, and ten years) who were asked to play the role of listener in a referential communication game. The speaker was an adult confederate who produced messages of variable informational adequacy. After a set of pretest trials on the communication game, half of the Ss received a plan for effective listening. All Ss then participated in a set of posttest trials on the game. Principal dependent measures were the number of requests for further information and the number of correct referent choices by each listener. Significant development of listener skills was observed; older children asked more questions and made more correct referent choices than younger children. The plan facilitated the listener performances of all but the four-year-olds. A content analysis indicated that very few of the children's questions were egocentric in nature; the vast majority were specific and task-relevant. (Author)

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PLANS AND THE DEVELOPMENT OF REFERENTIAL COMMUNICATION SKILLS IN YOUNG LISTENERS

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In studies of referential communication, a speaker is asked to transmit - by purely verbal means - some specified information to a listener. While research on referential communication has consistently found that communication between preschool children can be quite ineffective, performance improves during the elementary school years. The blame for communication failures in young children has generally been attributed to the inadequacy of young speakers' messages.

As Glucksberg has recently noted, however, the listener in a referential communication setting also has a number of ways to influence the outcome. For example, the listener can assess his own degree of certainty about the target referent's identity. He can also tell the speaker if he needs more information, and he can specify exactly what information he needs. Thus, the listener's behavior may also have an important role in influencing communicative success.

How do young listeners respond to inadequate messages offered by a speaker? The data on this point are difficult to interpret, since children have generally been asked to respond either to fully adequate messages produced by adult speakers or extremely variable messages produced by other children. We set out to study this question by using an adult speaker who produced messages which varied systematically in their informational value.

We used sets of four potential referents which varied in terms of binary attributes. For example, one set included a striped triangle, a plain triangle, a striped circle, and a plain circle. Some of the speaker's messages gave all the information needed to choose the correct referent - for example, "it's a striped triangle." Others of the speaker's messages were only partially informative - for example, "it's a shape." Using this technique, we investigated the development of children's ability to respond effectively when the speaker's messages were initially unclear or ambiguous.

Another main interest we had was in the possibility of facilitating development of children's listener skills. Earlier attempts

to train referential communication skills have focused mainly on the speaker, and with the exception of a recent study reported by Whitehurst, have met with relatively limited success. One approach which has met with considerable success in facilitating children's self-control has been to provide them with plans with which to guide their behavior, and we decided to try this approach.

So we had two main aims: To study the normal development of listener skills in referential communication, and to study the influence of plans on children's listener performances.

Our subjects were 96 children, 24 at each of four age levels: preschool, kindergarten, second grade, and fourth grade.

This experimental setting had a table with a divider on it, chairs for the listener and the speaker to sit across the table from each other, and a chair for the experimenter.

The sets of referent items were drawn onto cards, one potential referent to a quadrant. To make uninformative messages plausible, the speaker was given only one quadrant for each trial.

Each child was told that although he saw four pictures, the speaker would see only one. The speaker would describe his picture, and the child was to mark the one that matched the speaker's picture. The child was told that he would get one point for each correct choice, and that if he got enough points, he would win a Good Player Award, a handsome certificate.

The experimenter stressed that there was only one rule in the game -- that the child could not peek over the divider -- and that the child was free to do anything else to help him win points. It was emphasized that the child could talk to either adult as much as he wanted.

A 12-trial pretest was then administered. The speaker produced equal numbers of informative, partially informative, and uninformative messages. Any questions asked by the subjects were answered in a straightforward manner.

After the pretest had been completed, the experimental manipulations were introduced. The experimenter began by suggesting that they try to think of something that the child could do to help him play the game better. For subjects in the plan condition, she then suggested, "Whenever you are not sure what the right answer is, you can ask questions to help yourself figure it out." In the no plan control condition, however, children were told: "You can keep on remembering that the only rule in this game is that you can't look on the other side of the table." These instructions were elaborated and repeated in a standard pattern, and the children's comprehension of them was carefully assessed.

Twelve posttest trials followed. These were identical to the pretest trials, except they employed new stimulus materials.

The main dependent measures were number of questions asked and number of correct referent choices.

First, I'd like to talk about the data for the number of questions asked. In Figure 1, we've shown the number of questions as a function of age, time of measurement (that's pretest vs. posttest) and experimental condition.

The first major question here is whether significant development of listener skills was observed, and the relevant data for this purpose are the pretest scores for each age group. A strong main effect for age indicated that significant development of listener skills was observed. This main effect was due to the fact that fourth graders spontaneously asked many more questions than younger children did; the three younger age groups did not differ among themselves.

Our second main concern was with the effect of plans on listener behavior. The relevant data here are the changes from pretest to posttest in number of questions asked. An analysis of variance revealed that the plan had a strong effect, overall, on children's tendency to ask questions. As one might guess from the figure, the plan increased the number of questions asked by all but the preschool children. This improvement was statistically significant in all three

older age groups, but was somewhat less pronounced among the fourth graders who were already performing relatively well on the pretest.

Thus, these data evidence both significant developmental trends and significant facilitation of listener behavior resulting from the introduction of plans.

The next issue, of course, is whether these changes in children's questions influenced their referent choices. As the data in Figure 2 show, the answer is clearly yes. This time, we've plotted the number of correct referent choice, again as a function of age, time of measurement, and experimental condition.

First, consider the developmental issue: Before they have received any instructions, do older children choose more correct referents than younger ones? Paralleling the findings on questions, the data do show a strong main effect for age. Again, fourth graders chose more correct referents than younger children; and again, none of the three younger age groups differed among themselves. So we see development of spontaneous listener skills here too.

Next, we were interested in any effect the plan might have had on listener behavior. Here again, the data parallel those for the number of questions asked. In the analysis of variance, there was an overall main effect of the plan on number of correct referent choices; children in the plan conditions made more correct referent choices than those in the control condition. Again, this effect was significant for all three older age groups, but not for the preschool children.

To summarize briefly, then, the data show that in terms of spontaneous, uninstructed performance, fourth graders asked more questions, received more information, and therefore made more correct referent choices than younger children did. The plan had a positive effect on the performances of all but the youngest listeners.

It was also of interest to examine how the children asked questions. Did they ask questions merely at random, without regard for

their task-related informational needs? Or did they do so in a discriminative manner, to seek additional information when necessary? If they were discriminative, then they should have asked more questions when the speaker's messages were uninformative. The data shown in Figure 3 indicate that this was the case. Almost no questions were asked at any age when the speaker's messages were fully informative; the overwhelming majority of questions were asked when the initial message offered by the speaker was either partially informative or uninformative. Thus, children's use of questions was largely appropriate and task-related.

Along this line, we might note that a content analysis of the children's questions showed that the vast majority of them were task-related, and sought additional necessary information. It is perhaps surprising that only one percent of the questions asked could be categorized as egocentric in nature.

These results provide evidence about the development of an important listener skill - the ability to deal effectively with messages which are initially unclear or ambiguous. Whereas fourth graders responded to ambiguous messages by requesting further information until they were sure of the referent's identity, younger children did not spontaneously do so. This shortcoming may be an important cause of communication failures in young speaker-listener pairs.

The fact that brief instructions about a plan for effective listening were successful in facilitating the performances of all but the preschool children suggests that older children's difficulties reflect performance rather than ability factors. The rapid improvements shown by these older children might be artifactual, however, if their initially poor performances resulted from feelings that questions were inappropriate or "not allowed" in this context. An additional control experiment, in which several second graders were queried directly on this issue, revealed that this was not the case.

What, then, was responsible for improvements in the plan conditions? Asher has suggested that one cause of poor performance may be a failure to compare referents and non-referents to the information contained in the message. By encouraging children to ask discriminating questions, the plan used here may have facilitated such comparison activities. Having made the appropriate comparisons, however, a child might also fail because he did not know what to do when a message was inadequate. Of course, the plan also indicated what to do in these circumstances. The relative contribution of these two factors to the success of the plan cannot be determined on the basis of our current data.

Although the plan was effective with older children, it had no impact on the behavior of preschoolers. As a result, our data provide little information about the source of these children's difficulties, but several ideas may be considered. One hypothesis about the source of young children's difficulties is that their performances were limited by cognitive egocentrism, but our data provide little support for this idea. A more likely possibility is that the plan was presented at too abstract or general level for the preschoolers to benefit from it. Yet a third possibility is that the preschool children simply forgot the plan. Further research is also needed here.

To summarize, our results suggest the following description of the development of listener skills in referential communication. Children as young as four are relatively successful in using the information contained in a speaker's initial message. When the speaker's message is ambiguous, however, preschool children are not likely to spontaneously request clarification; nor is their tendency to do so easily facilitated by instructional means. Like the preschool subjects, kindergarten and second grade children's spontaneous tendency to ask for clarification is slight; unlike the preschoolers, however, these older children are easily led to plan their behavior so as to maximize listener performance. Fourth graders' ability to deal effectively with ambiguous messages is relatively well-developed, but also evidences significant improvement upon the introduction of

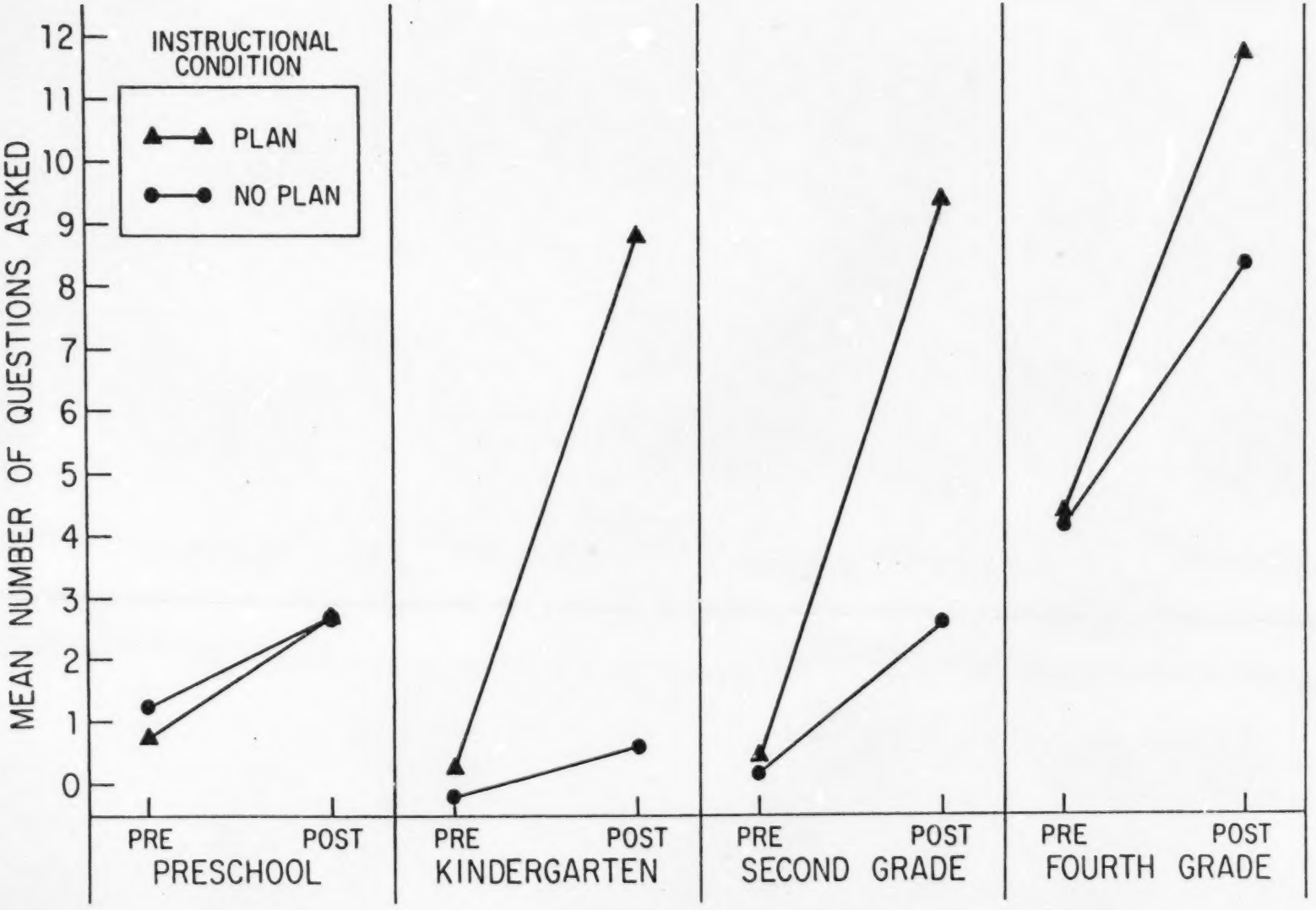
plans for effective listening. Overall, the findings suggest both the importance of the listener role in referential communication and the relevance of plans for efforts to facilitate the development of communication skills.

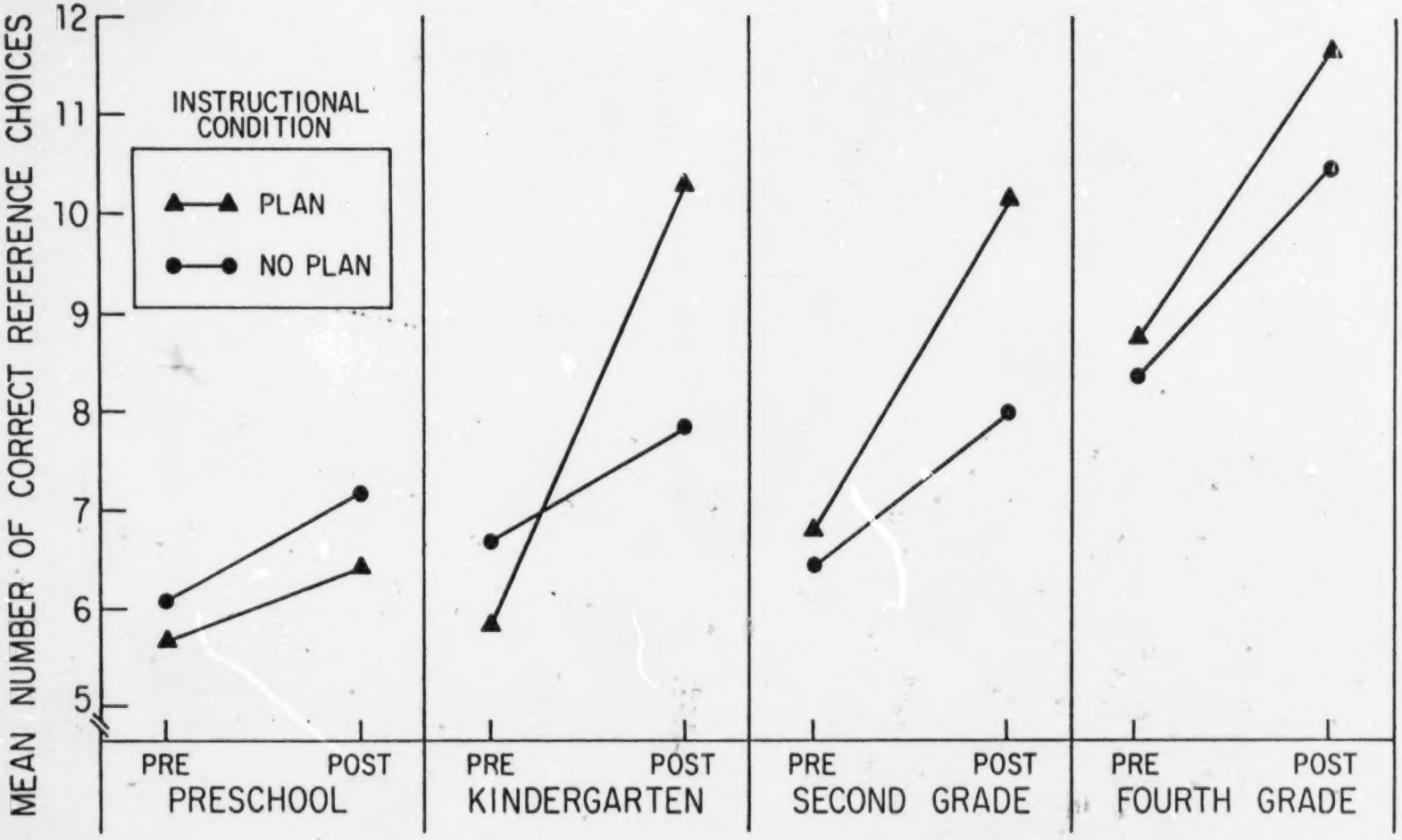
Figure Captions

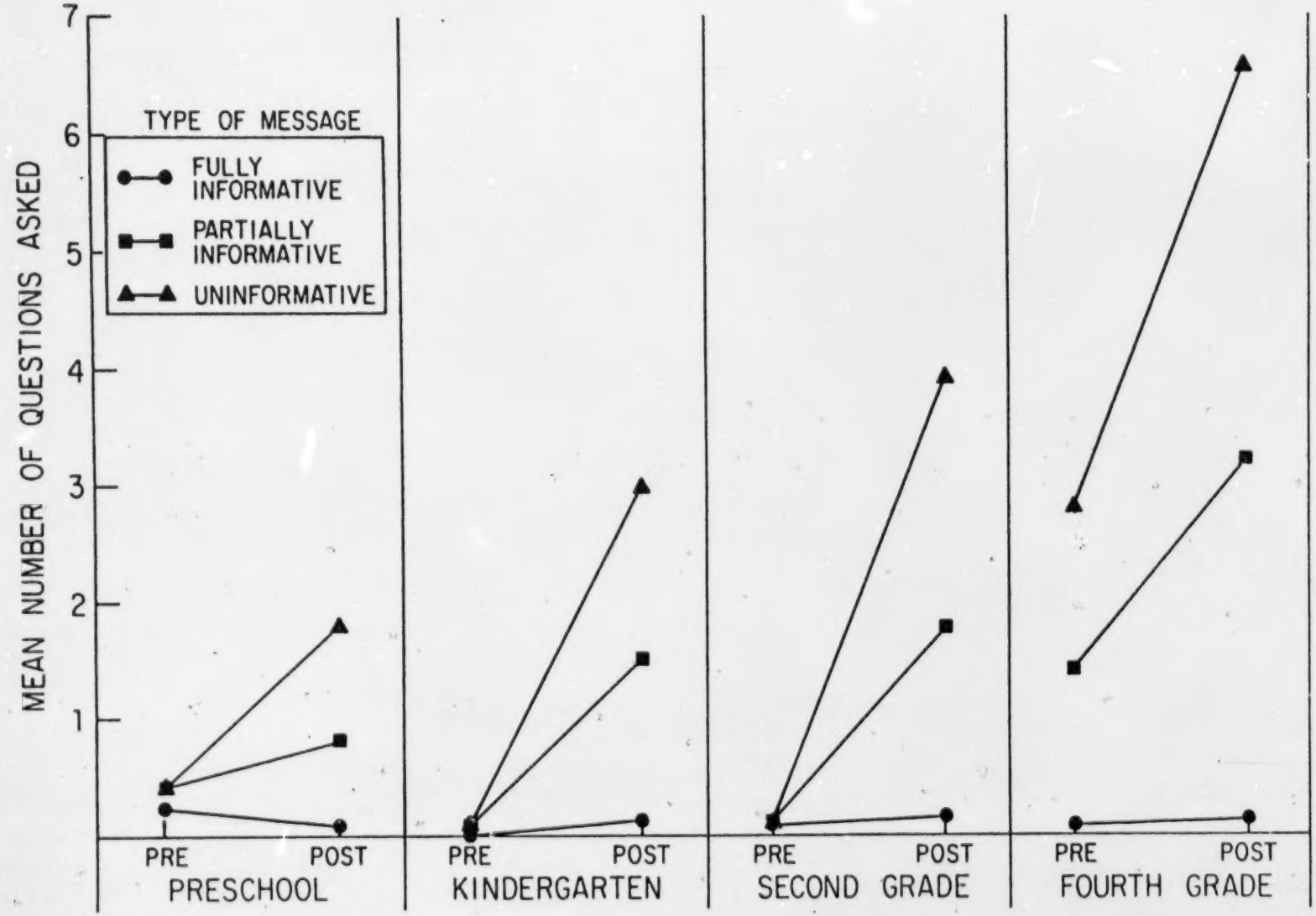
Figure 1. Mean number of questions asked as a function of age, condition, and time of measurement.

Figure 2. Mean number of correct referent choices as a function of age, condition, and time of measurement.

Figure 3. Mean number of questions asked as a function of age, message type and time of measurement.


INSTRUCTIONAL CONDITION
PLAN
NO PLAN
MEAN NUMBER OF QUESTIONS ASKED
0
1
2
3
4
5
6
7
8
9
10
11
12
PRE
POST
PRESCHOOL
KINDERGARTEN
SECOND GRADE
FOURTH GRADE


MEAN NUMBER OF CORRECT REFERENCE CHOICES
12
11
10
9
8
7
6
5
INSTRUCTIONAL CONDITION
PLAN
NO PLAN
PRE
POST
PRESCHOOL
PRE
POST
KINDERGARTEN
PRE
POST
SECOND GRADE
PRE
POST
FOURTH GRADE


MEAN NUMBER OF QUESTIONS ASKED
7
6
5
4
3
2
1
TYPE OF MESSAGE
FULLY INFORMATIVE
PARTIALLY INFORMATIVE
UNINFORMATIVE
PRE
POST
PRESCHOOL
KINDERGARTEN
SECOND GRADE
FOURTH GRADE